

Brief Communications

Aortic perforation with cardiac tamponade two weeks after pacemaker implantation

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Bleeding is a known complication of pacemaker lead implantation. A protruding pacemaker wire can cause perforation and bleeding into the pericardial sac at any time after insertion, and can also cause perforation of the aorta, as described below.

Clinical Summary

A 70-year-old man was admitted to the hospital after the sudden onset of chest pain and clinical signs of cardiac tamponade. A computed tomographic (CT) scan confirmed effusion in the pericardium and along the ascending aorta (Figure 1, A and B). Moreover, CT findings were suggestive of a type A aortic dissection. Owing to a heart block, the patient was implanted with a pacemaker 2 weeks before onset of symptoms, and he was receiving warfarin. Because of hemodynamic instability, he was immediately operated on through a sternotomy, and extracorporeal circulation was established through the left groin. A significant hemopericardium was evacuated. An ulceration (diameter of approximately 1 cm) with a central bleeding point (Figure 2) was revealed anteriorly on the ascending aorta. This was caused by a pacemaker wire protruding through the right atrium exactly opposite to the ulceration. The ulceration was resected after cross-clamping of the aorta and the aortotomy was closed by a double running suture. The pacemaker wire was covered by a pericardial patch followed by plication of the right auricle. Recovery was uneventful, and the patient was discharged the eighth postoperative day. Before discharge, pacemaker function was monitored and position of the atrial pacemaker lead was not adjusted.



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Discussion

Epicardial perforation by pacemaker leads associated with pacemaker implantation is a known complication. Most perforations do not result in major sequelae. Cardiac tamponade, usually the result of chamber perforation, is the most ominous implant complication.¹ Aortic perforation by a pacemaker lead is extremely uncommon.^{2,3} Our patient had no symptoms until he collapsed during his weekly bridge game 2 weeks after the pacemaker implantation. The sudden onset of chest pain combined with circulatory collapse and a large amount of blood in the pericardium and around the ascending aorta advocated for a type A aortic dissection. However, in patients with cardiac tamponade after recent pacemaker implantation, bleeding caused by pacemaker lead perforation should be suspected.

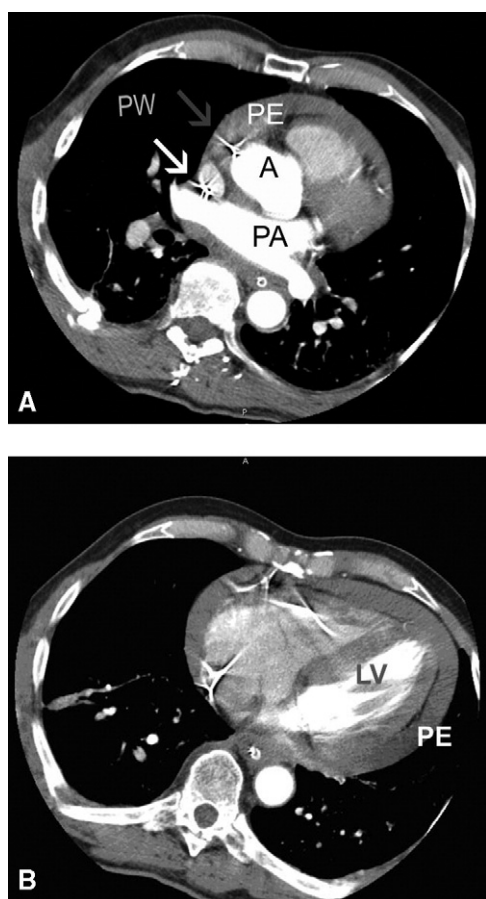


Figure 1. A, CT scan at arrival revealed pericardial effusion (PE) of 1.5 cm around the ascending aorta (A). Pacemaker wire (PW) is visible in the superior vena cava (white arrow) and in the right atrium (gray arrow). PA, Pulmonary artery. B, PE around the left ventricle (LV).

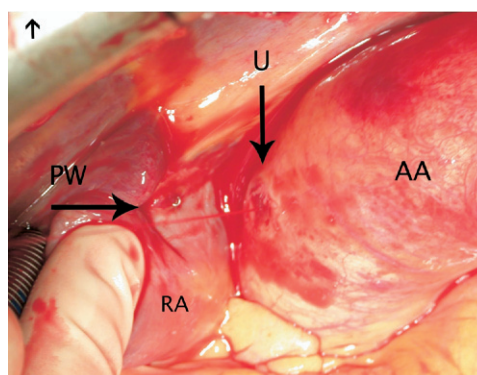


Figure 2. Aortic ulcer (U) with a central bleeding point on the anterior aspect of the ascending aorta (AA) caused by mechanical friction of an atrial pacemaker wire (PW) protruding from the right atrium (RA). Single arrow pointing upward indicates the direction of the illustration.

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